

REMARKS/ARGUMENTS

This is in response to the Office Action mailed December 29, 2005.

Claims 1 through 10 are currently pending in the application.

Claims 1 through 10 stand rejected.

Applicant has amended claims 1, 4, 6, and 9, and respectfully request reconsideration of the application as amended herein.

35 U.S.C. ' 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent 6,166,434 to Desai et al. in combination with U.S. Patent 5,137,959 to Block et al.

Claims 1, 3, 4, 6, 8 and 9 stand rejected under 35 U.S.C. ' 103(a) as being unpatentable over Desai et al. (U.S. Patent 6,166,434) in combination with Block et al. (U.S. Patent 5,137,959).

Applicant respectfully traverses this rejection, as hereinafter set forth.

Applicants assert that to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the cited prior art reference must teach or suggest all of the claim limitations. Furthermore, the suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicants' disclosure.

Turning to the cited prior art, the Desai et al. reference teaches or suggests a die clip for use in a semiconductor flip chip package as a replacement for the combination of a heat spreader and stiffener. The die clip engages the die while leaving some space open around the perimeter to provide access to the die. An under fill material is dispensed into the gap between the die and the substrate through an opening in the die clip. See column 6, lines 60 through 65 continuing to column 7, lines 1 through 10 as opposed to the drawings FIG.'s 2A through 2G. The Desai et al. reference does not teach or suggest the use of gel elastomer contacting a portion of the back side

surface of the semiconductor die whatsoever. At best, the Desai et al. reference teaches or suggests the use of an adhesive to attach the die 200 to the die clip 210.

The Block et al. reference teaches or suggests the use of alumina platelets used as thermally conductive, insulating filler in thermally conductive, insulating elastomers.

Applicants assert that any combination of the Desai et al. reference and the Block et al. reference does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 because any combination of such cited prior art, at the least, fails to teach or suggest all of the claim limitations of the inventions of independent claims 1, 4, 6, and 9. Applicants assert that any combination of the Desai et al. reference and the Block et al. reference does not teach or suggest the claim limitations of the inventions of independent claims 1, 4, 6, and 9 calling for “a gel elastomer contacting at least a portion of the back side surface of the semiconductor die, the gel elastomer comprising a compliant adhesive filled with a thermally conductive material”, “a compliant adhesive filled with a thermally conductive material gel elastomer contacting at least a portion of the back side surface of the semiconductor die”, “a heat sink cap having a portion thereof contacting a portion of the substrate covering the gel elastomer, the semiconductor die, the plurality of solder balls, and a portion of the substrate, the heat sink cap contacting at least a portion of the gel elastomer”, and “a heat sink cap having a portion contacting a portion of the substrate covering the compliant, adhesive, and filled with a thermally conductive material, gel elastomer, the semiconductor die, the plurality of solder balls, and a portion of the substrate, the heat sink cap contacting at least a portion of the gel elastomer”. Applicants assert that the Desai et al. reference does not teach or suggest the use of a gel elastomer and does not have the die clip contacting a portion of the substrate as a gap is located between the die clip and the substrate to allow for the dispensing of underfill into the die clip. See column 6, lines 60 through 65 continuing to column 7, lines 1 through 10 as opposed to the drawings FIG.’s 2A through 2G.

Accordingly, independent claims 1, 4, 6, and 9 are allowable as well as dependent claims 2, 3, 5, 7, and 8 therefrom.

Obviousness Rejection Based on U.S. Patent 6,166,434 to Desai et al. and U.S. Patent 5,137,959 to Block et al., and further in combination with U.S. Patent 6,225,695 to Chia et al.

Claims 2, 5, 7, 10 which stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Desai et al. (U.S. Patent 6,166,434) and Block et al. (U.S. Patent 5,137,959), as applied to claims 1, 4, 6, and 9, and further in combination with Chia et al. (U.S. Patent 6,225,695).

Applicant respectfully traverses this rejection, as hereinafter set forth.

Applicant asserts that dependent claims 2, 5, 7, and 10 are allowable because they depend from allowable independent claims 1, 4, 6, and 9 for the reasons set forth hereinabove.

ENTRY OF AMENDMENTS

The amendments to claims 1, 4, 6, and 9 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application to clearly comply with the provisions of 35 U.S.C. § 132.

CONCLUSION

Claims 1 through 10 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicant's undersigned attorney.

Respectfully submitted,



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